



Using Equations to Find Area of Shapes

Grades: 3, 4, 5

Materials:

Cuisenaire® Rods for each child
Using Equations to Find Areas of Various Shapes
Worksheet for each child, page 99

Settings:

One child working individually
A small group, children working individually
A whole class, children working individually

Learning Experience:

Using the Worksheet, allow children to form their own ideas for writing area equations of designs. If they need help, you could suggest they use the rods to aid them. With the rods placed over the designs, children can group the rods into rectangles that make multiplying sides easier to manage. For example, the first shape on the Worksheet can be made with 2 black rods, 4 yellow rods, and 1 red rod. If children group these rods together, they can make the following equations: $(2 \times 7) + (4 \times 5) + (1 \times 2) = 36$.

Tell students that area is written as units squared. Because the rods are in increments of centimeters, the answer would be in cm^2 , so the answer from above would be 36 cm^2 .

As a class, discuss the various equations the children made to find the areas of the shapes. Were there any surprises?

You may also want to introduce the pre-algebra concept of variables by encouraging students to first write the equation with their rod codes. In the example above, the equation may look as follows:
 $(2 \times K) + (4 \times Y) + (1 \times R)$

Math Journal Entry: Ask children to write their strategies for finding the area for each design.

Worksheet Answer Key

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Equations will vary for each problem.

1. 36 cm^2
2. 32 cm^2
3. 41 cm^2

W	for	<u>W</u> hite
R	for	<u>R</u> ed
G	for	<u>G</u> reen
P	for	<u>P</u> urple
Y	for	<u>Y</u> ellow
D	for	<u>D</u> ark Green
K	for	blac <u>K</u>
N	for	brow <u>N</u>
E	for	blu <u>E</u>
O	for	<u>O</u> range

Underlying Mathematics Related to NCTM Standards:

Recognition of equivalents of lengths
Calculating area
Understanding operations
Visual problem solving
Communication and verbalization of ideas
Writing tie-in

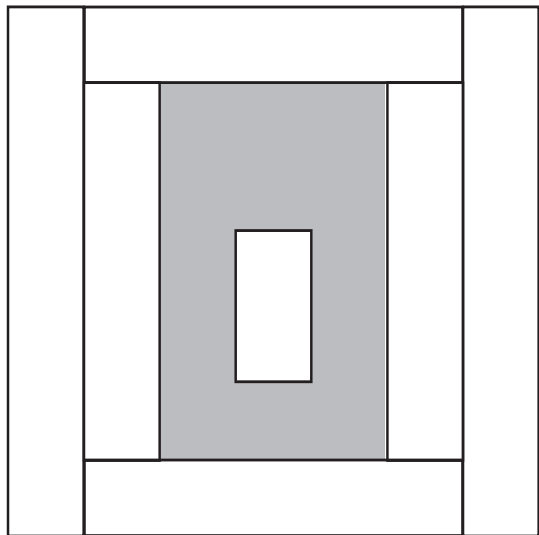
Using Equations to Find Area of Shapes Worksheet



Name: _____

Date: _____

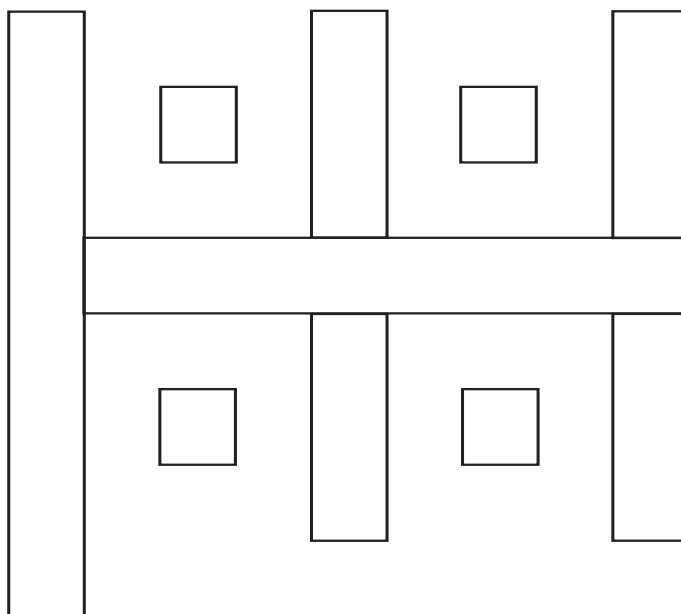
Cover the designs below with your rods. Write an equation for the area of each design using multiplication and addition. Then, write the area of each design below in cm^2 .



1

Equation:

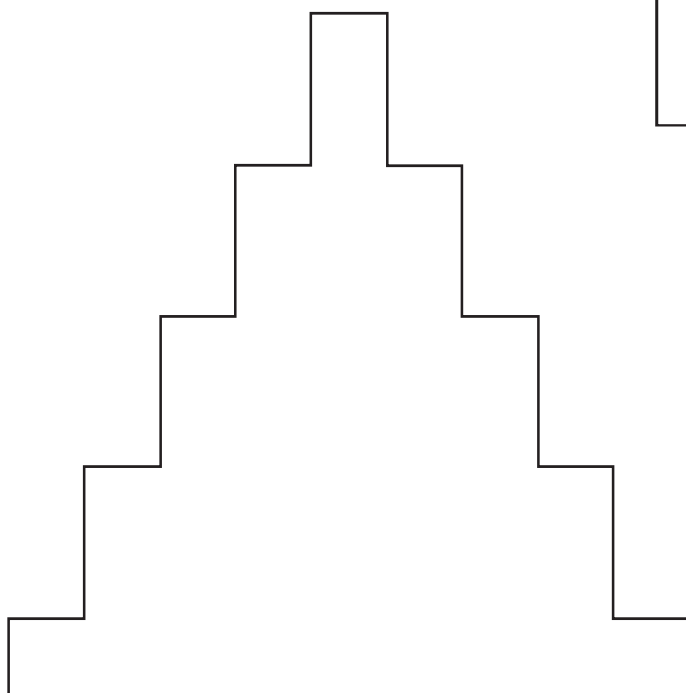
Area:



2

Equation:

Area:



3

Equation:

Area:
